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INTEGRATED SENSOR WITH FRAME MEMORY AND PROGRAMMABLE
RESOLUTION FOR LIGHT ADAPTIVE IMAGING

ABSTRACT OF THE DISCLOSURE

An image sensor operable to vary the output spatial resolution according to a received light level while maintaining a desired signal-to-noise ratio. Signals from neighboring pixels in a pixel patch with an adjustable size are added to increase both the image brightness and signal-to-noise ratio. One embodiment comprises a sensor array for receiving input signals, a frame memory array for temporarily storing a full frame, and an array of self-calibration column integrators for uniform column-parallel signal summation. The column integrators are capable of substantially canceling fixed pattern noise.

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